

## Nanofiber technology enables to optimize the European air filtration standard

Nanofiber technology in filter media enables filters to collect more and smaller particles than no other air filtration technology. While at the same time last longer and use less fan and compressed energy, nanofiber technology reduces operating costs, increases production effectivity and is more sustainable for the planet. The nanofiber technology is well proven and gives immediate effects, which makes a change of filter media to a safe investment that will guarantee cleaner air and higher performance - with reduced costs.

In this white paper you´ll learn about:

- **Nanofiber technology within air filtration**
- **Opportunities for the European industries**
- **Health risks for industrial workers and how nanofiber technology creates a healthier work climate**
- **How your industry can benefit economically by using nanofiber filter medias**

### The European air can get cleaner

By collect more and smaller particles than any other filter media, nanofiber filter medias generates in cleaner air and a healthier work environment for employees. So why isn´t it used in every industry in every region of the planet?

Nanofiber technology applied on filter medias is a well proven technique and have been the standard in the U.S. for many years. It´s a clear choice for air filtration systems at the American market, but not in Europe. The fact that it´s not yet a standard in European industries clarifies the opportunities for air filtration in the region: the European air can get cleaner.

### The safety culture is critical for operational workers

The Covid-19 pandemic has reminded the population that we are not immortal. We actually can get sick, for real. Industrial production is one of the most important risks to personal health, due to the industrial contribution to bad air quality. Air pollution is the 4th most common cause of death in the world and within EU alone, poor air quality is estimated to account for about 400 000 premature deaths per year. And it´s not only effect our health, it also cost us money. In Europe, air pollution has an annual cost for society of between 250 - 1 000 billion Euros.

Industrial workers are especially exposed to bad air. Work environments with dust, fume and gases highly effects workers health. People who work in unclean environments easier gets sick and tend to be out of work more often than workers who work in clean environments. And there´s not only direct consequences, but also several negative long term health effects. Studies agrees that bad air increases the risks of various diseases such as Parkinson´s, Alzheimer´s and different kinds of cancer.

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Air pollution accrues in all industries and measures has to be done to prevent risks for workers. A concrete example is that a welder generally produces 35-75 kg toxic welding fumes per year and several studies conclude that lung cancer among welders is 20-30% more common than among other professionals. Using a mask helps the individual welder, but not the colleagues nor the citizens in the near area. Extraction close to the source and filtration through a quality filter is of highest importance to not spread the toxic fumes around the workplace and out in the local environment and further globally. A well-established safety culture is critical for operational workers and the pandemic has reinforced the overwhelming importance of that

### How optimized air filtration decreases operating costs

Inefficiency is expensive. Regardless if it results in sick leave, tired workers due to affected breathing pathways or machines that are not operating with maximum capacity, the inefficiency increases operating costs. The amount of energy use and time spent on maintenance also has direct consequences on the operating costs. All affected by the air quality.

Dust and particles in machines affect both operation power and life span of a machine. Clogged filter media needs to be cleaned or changed which causes downtime in production. With more effective air filtration technique and cleaner air, workers will be healthier and work more effectively, machines will last longer and perform with higher capacity with the use of less energy and maintenance on both machines and filters will be needed less often. Operators can thereby focus on production instead of maintaining filters and machines. Optimized air filtration increases productivity and nanofiber technology is the way to go.

### Top 5 advantages with nanofiber filter media

- **Collects more and smaller particles which generates in cleaner air**
- **Achieves full capacity immediately**
- **Increases production efficiency**
- **Reduces energy consumption which leads to reduced operating costs**
- **Last longer and needs less maintenance**

### Nanofiber filter media – Cleaner, safer and with decreased operating costs

Nanofiber filter media technology is greater than 85% efficient on sub-micron particulate and has greater than 99% operational efficiency after dust accumulation. Nanofiber is the American standard within filter media but not yet in Europe which brings opportunities for the European industries and room for improvements for the European air quality. The advanced nanofiber technology enables the filter media to collect more and smaller particles with less use of energy and at the same time the filter media lasts longer. The increased efficiency and the longer lifetime will decrease operating costs at the same time as it creates a cleaner and safer work environment for industrial workers and for citizens in general.

Compared to blended paper filter media without the nanofiber technology, which is traditionally used in Europe, nanofiber filter medias applies surface loading. This enables the filter to capture small particles from start instead of letting them through in the beginning and not reaches full efficiency until later in the production, which is common with other technologies. The surface loading also enables that more airflow per cartridge can be realized which means that less fan and compressed energy is needed, as well as it makes the filter media easier to clean.

## What is nanofiber and how does it work?

Nanofiber is a synthetic polymer fiber that is applied through a spraying process to the top of a filter media to enhance its filtration properties. It's the spraying process that makes the nanofiber collect the dust on the surface of the filter which prevents that dust will be trapped in the depth of the media. This leads to longer cleaning intervals, and when cleaning is needed its noticeable easier, as well as less need for maintenance of the machine, because the dust stays in the surface. The surface loading also increases the airflow at capture points which leads to less operating pressure drop and less energy consumption while operating.

The advanced nanofiber technology within filter media is well proven and have been the standard in the U.S. for many years. The reasons for not using it in Europe in the same extension is rather due to traditional reasons, or lack of knowledge, and not due to quality or costs. Blended paper media without nanofiber technology is most common for filter media in Europe, it works and is not bad, but as long as clean air processes can be optimized they should be optimized. And the European market has the opportunity to do so, by upgrade with nanofiber technology.